Intelen
DATA ANALYTICS TO ENGAGE

Improving Energy Efficiency in Greek Schools with IPv6-enabled Smart Meters

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CEO & co-founder
Intelen

ETSI Conference - 8/10/2013
Profile (as of Sep 2013):

- 2 years in operation
- Operations in 5 countries
  - Intelen, Inc HQs NY, USA
  - Athens, GR
  - Nicosia, CY
  - Spain, ES
  - Romania, RO
- Employees: 20++
- Infrastructure & SaaS Products
- Compact IP portfolio (2 US patents)
- World recognitions (innovation awards)
- Already raised $2.1M from Angels and awarded 4 EU grants
• Fully integrated Building Energy Efficiency platform
  – Real time Building Analytics
  – Case-if retrofit scenarios
  – User engagement via gamification & behavioral response
• Cloud based solution provided on SaaS platform
• Turn Key solution that leads to energy efficiency

<table>
<thead>
<tr>
<th>Real time data Analytics</th>
<th>Advanced Analytics</th>
</tr>
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<tbody>
<tr>
<td>(down to 2 seconds intervals)</td>
<td>(scenario predictive planning)</td>
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<table>
<thead>
<tr>
<th>Real time user interaction</th>
<th>Long term user engagement</th>
</tr>
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<tbody>
<tr>
<td>(behavioral demand response)</td>
<td>(gaming and social principles)</td>
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Human engagement life-cycle
The Power Of Ten reference project

Proof of value project

• A 12 week project (Feb-May 11)

• Prove that through competition and games in Intelen & Facebook platform, a noticeable shape of demand can be achieved.

<table>
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<tr>
<th>AVG Engagement time</th>
<th>23 min</th>
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<tbody>
<tr>
<td>AVG Playing time</td>
<td>3,6 hrs/day</td>
</tr>
<tr>
<td>AVG annual cost reduction during games</td>
<td>2,200 €</td>
</tr>
<tr>
<td>AVG energy reduction during games</td>
<td>29%</td>
</tr>
</tbody>
</table>
Student Engagement graph

% Reaching DR Goal

- week1: 64.65%
- week2: 66.97%
- week3: 71.46%
- week4: 71.65%
- week5: 74.61%
- week6: 72.96%
- week7: 73.21%
- week8: 73.03%
- week9: 77.02%
- week10: 76.03%

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GEN6 Greek Pilot case

- Mobilise school communities for environmental protection
- Raise energy awareness in between students
- Raise awareness in new technologies, especially IPv6

**The pilot aims to:**
- Interconnect intelligent smart meters over IPv6 in 50 schools
- Influence the behavior of the school communities so as to reduce energy
- Energy related information from participating schools will be recorded using smart meters
- Disseminated to the users via a secure communication channel
IPv6 on Smart metering & Smart Grids

- Internet Of Things (IoT) approach
- Point to Point connections
- P2P Data Analytics
- N-tier model bellows to the past…
Architecture
GEN6 EU project

- CTI
- GRNET
- Intelen

Daily Energy Consumption: 03–10–2013

Period: Daily Energy Consumption
Date: 03–10–2013

{GEN6} 13ο Δημοτικό Σχολείο Κερατίου

10

10 °C

Total Consumption (kWh): 185.504
Number of Measurements: 96
Completeness of Measurements (%): 100.00
Comparison To Previous Day (%): 17.18
CO₂ Emissions: 157.678

Ranking Information here

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Figure 2.2: Spearman-based Association Heatmap for building efficiency analysis.

Figure 3.1: SVR Cross Validation Results for daily forecasting on Peristeri School data.
Energy behavioral analytics

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A Game
start 08-29-2013
End 10-22-2013

Vassilis Nikolopoulos
member since 07-10-2013

DEMO@DEMO.COM

Games played 1
Game days 30

Libertines
Building Intelen HQ
Division Computer Room

Green Team
Game Rank
17 POINTS
37% AWARENESS

63% ENGAGEMENT
53% EFFECTIVENESS

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Join Social IoT communities and save energy

http://www.intelen.com

http://www.gen6.eu

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